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ABSTRACT

This document presents an evaluative description of the evolution of a competency based methods course in special education. The course evolved as a function of continuous process evaluation developed out of the realization that it was unnecessary to teach completely separate methods courses in special education for teacher certification in the areas of mental retardation, behavioral disorders, learning disabilities, and orthopedically impaired. The Joint Methods Course was developed to provide teaching modules in which the critical teaching skills in these areas were cross-categorized. Team teaching was provided for instruction in the modules. Students in these courses were pretested before entering a module and posttested upon completion. The students were asked to continually evaluate their experiences in this method of instruction. Over a period of several years, student criticism and suggestions were considered and used to modify and change the curriculum and the structure of the course. Some modules were eliminated; others changed or enlarged. Eventually the joint methods course was discontinued. However, it was determined that the standard module format is an excellent model for writing subsequent modules. It also has the advantage of assuring consistency across diverse content, which facilitates student and faculty use. In addition, faculty gained extensive experience in writing competency based instructional modules. (JD)

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The Evolution of a Non-Categorical Competency-Based Special Education Methods Course

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In recent years Competency-Based Instruction (CBI) has become a major influence on special education teacher training programs. The implementation of CBI procedures has been documented in a variety of higher education settings including introductory courses in psychology (Keller, 1968; Sheppard and MacDermot, 1970) and special education (Renne and Blackhurst, 1977). The range of CBI involvement has extended beyond single course applications to entire training programs (Burke, 1972; Edgar and Neel, 1976; Berdine and Kelly, 1977), and in at least one instance, an entire state network of teacher training (Creamer and Gilmore, 1974) has become actively involved in competency-based teacher education (CBTE). Competency and performance statements have been the subject of research and development on an equally diverse scope of educational training activities, ranging from specific areas of instruction, such as arithmetic (Cawley and Vitello, 1972) to doctoral training in special education (Ingram and Blackhurst, 1975).

Notwithstanding its popularity, the effectiveness of CBI in higher education training programs is not as well documented (Altman and Meyen, 1974). The scarcity of documentation to support or refute the effectiveness of CBI programs or procedures is a problem involving both the relative infancy of CBTE and consequent paucity of longitudinal data, and the significant difficulty in completing a summative evaluation of a process such as teacher training.

This article presents an evaluative description of the evolution of a competency-based methods course in special education. The origin of the course has been described earlier (Blackhurst, Cross, Nelson, and Tawney, 1973). Our purpose here is to demonstrate how the course evolved as a function of continuous process evaluation. Essentially, the course developed

out of the realization that it was unnecessary to teach completely separate methods courses in special education for the various teacher certification areas of mental retardation, behavioral disorders, learning disabilities, and orthopedically impaired. Through examination of course content, it was determined that many of the critical teaching skills were cross-categorical in terms of their application in classroom settings for children with various disability labels. The Joint Methods Course (JMC) was developed to provide instruction in the critical teaching skill areas of the four special education teacher certification categories mentioned above.

Course Operation

The following description applies to the operation of the JMC during its final year (1975). How and why it evolved into this form will become apparent in the next sections, which describe the formative evaluation procedures and the course changes resulting from this evaluative process. More complete descriptions of the operation of the JMC are contained in Blackhurst, et. al. (1973) and Nelson (1974).

The JMC was staffed by the four instructors assigned to the departmental methods courses. In addition, between four and seven masters level graduate assistants were assigned each semester as course proctors. Since the JMC was offered only during the spring semester, it was the responsibility of the JMC coordinator, who had the support of one or two graduate assistants, to initiate and coordinate the necessary course planning and revision each fall.

The population of the JMC was composed of upper-level students (juniors, seniors, and graduates), who enrolled in the categorical methods course appropriate to their certification areas. Each instructor determined in which joint modules his students would participate, and so informed the coordinator. On the basis of this information, the coordinator arranged for the production of the necessary instructional materials, and in conjunction with the other instructors, scheduled the joint modules and associated learning activities.

In addition to their participation in the joint modules, students met with their instructors in individual course sessions. These sessions were for the purpose of further applying the content of joint modules to a categorical child population, as well as to cover topics of particular concern to an individual categorical area (e.g., a module on lifting and transporting for students in the orthopedically handicapped area). All certification areas did not participate in all modules. For example, the reading module was not appropriate for students in the TMR area.

Joint modules followed the basic module structure proposed by Arends, Masla and Weber (1973). These modules were identified by the methods course instructors on the basis of their generic content. (The modules included in the JMC each year are listed in Table 2.) For the most part, the methods course instructors each took responsibility for developing and teaching one or more joint modules, although other faculty and advanced graduate students also contributed.

Several formats were available for each module to facilitate student use and progress: lecture-discussion sessions with the module instructor; video tapes of the module instructor's presentation; and written narratives prepared by the module instructors. Students could select any one or combination of these options. In general, joint modules were ordered sequentially. That is, success in subsequent modules depended upon prerequisite skills mastered in previous modules. Credit for a given module therefore could not be obtained until criterion had been reached on prerequisite modules. Students failing to meet criterion on a module were expected to recycle through one or more of the module formats until they succeeded in reaching the established criterion level.

For most of the joint modules, multiple criteria were established for successful completion. Six of the nine modules offered objective pre- and posttests over module content. Students could be excused from the content

portion of a module if they passed a pretest at the 90 percent level. If the module included a skill demonstration or practicum component, however (as did all of the 1975 joint modules), students who "tested out" still were required to complete that portion of the module. Students who elected not to take the module pretest, or who took it and did not reach criterion, selected one of the alternate formats available for that module, and upon completion of the module, took a posttest. Posttest criterion also was set at 90 percent. If criterion was not met, a second posttest was taken. If this was passed at the same criterion level, the student was awarded reduced point credit for that portion of the module (i.e., a response-cost contingency was imposed). Failure on the second posttest resulted in a mandatory tutorial session and no point credit for the content portion of the module. However, the content portion of the module was considered as completed.

The practicum component of each module required students to apply the skills and/or content included in each module. This component was evaluated on a pass-fail basis, with mandatory recycling of work not meeting criterion (and response-cost contingencies). Completion of a module was contingent upon meeting the criteria for both content and skill components.

Evaluation Procedures

From the beginning the JMC underwent intensive formative evaluation (Blackhurst, et. al., 1973). Each semester, students completed a detailed evaluation form for each joint module and for the course as a whole. Module evaluations were completed immediately after the conclusion of each module, and the course evaluation occurred at the end of the semester. Items on both evaluation forms included Likert-type ratings (e.g., "Module readings were helpful."), as well as open-ended questions (e.g., "List the three strongest features of this course.")[2] All evaluation forms were completed anonymously.

Summative evaluation procedures also were developed for the JMC. However, the frequent changes in course content and structure, as well as the number and changing complexion of the instructional staff, interferred with the systematic collection and analysis of data regarding student performance. Although some changes were initiated during the teaching semester (e.g., varying the content of lecture-discussion sessions, altering the number of individual and joint sessions for a given module), substantial course revisions were restricted to the interim period (summer and fall semesters). The JMC coordinator compiled the available evaluation data and prepared a report for the department. With the consultation of the departmental faculty, JMC instructors then planned course changes for the next spring semester.

The Joint Methods Course was first offered in the 1971 spring semester and was last offered in spring of 1975. During the first year, 50 students were enrolled. In subsequent years, course enrollments ran between 90 and 110 students. The data reported here were summarized from the 1971 through 1975 course evaluations.

Results and Discussion

During its five-year tenure, the JMC underwent a number of substantive revisions. The basis for these changes was the on-going process evaluation, which consisted of data from student evaluations, and the instructor's experiences and problems. Table 1 presents a portion of the student evaluation data-base, i.e., those features of the JMC that were rated highest and lowest each semester.

[Insert Table 1 about here]

The general trends in student evaluations were fairly constant, at least with respect to the course features perceived as weakest. Students consistently criticized the amount of work required for the time allotted.

Another consistent criticism related to the amount and quality of contact with individual instructors. Students objected to the limited availability of their designated instructor, and felt that, perhaps because of this restriction, the contacts they were able to make were not helpful. At the same time, students felt there were too many joint sessions, and the content of these sessions left something to be desired. (Particularly in the early years of the JMC, joint sessions were attended by 75 to 100 students.) Hanninen, Coleman, and Parres (1977) observed that students participating in the special education teacher training program at Wayne State University experienced a similar feeling of alienation, arising from the lack of contact with any one instructor.

In contrast to the consistency of perceived course weaknesses, students' perceptions of the strongest features tended to reflect the changes instituted for a given semester. (These revisions are described below.) For example, when increased practicum was added in 1973, this feature was well received. The addition of module pretests and the chance to "test out" of a module were popular features from the moment they were introduced.

A comparison of the strongest and weakest features within a given semester illustrates some of the problems the instructors encountered in trying to use process evaluation data to guide course revisions. For example, in 1971 team teaching was rated as a strength, yet students also felt that too many instructors were used. Such inconsistencies made it difficult to gain consensus regarding the changes needed in the JMC.

The major revisions in the content and format of the JMC are summarized in Table 2. Four modules (Evaluation of Instructional Materials, Perceptual

[Insert Table 2 about here]

and Motor Skills, Vocational and Social Skills, and Parent Counseling) were eliminated from the JMC in 1974 and 1975. The Language Module was dropped

in 1975. Another module, Resources for Special Educators, was made auto-instructional in 1974. No joint or individual sessions were scheduled for this module, which was completed independently by students.

Student comments regarding the excessive amount of work prompted the reduction from 13 to 8 modules. Selection of modules for elimination was based on the instructors' consensus as to what content was absolutely essential. This is not to imply that the eliminated modules were not important; efforts were made to include at least a portion of this content in other courses.

Although the instructors thought the reduction in number of modules would make the course more manageable for students, data from the 1974 and 1975 evaluations indicated that this effect was not realized. As joint modules were eliminated, module instructors tended to add more material and requirements to the remaining modules, or to include additional modules for their individual courses.

Beginning in 1974 the instructors devised strategies to reduce the demands on attendance at joint lecture-discussion sessions. One strategy involved the development of module pre- and posttests. Since module objectives and reading assignments were given to students in advance, a student who had previous information regarding a module, or who was able to read the assigned material and abstract the essential content, could be excused from the content portion of that module by passing a pretest. The majority of students attempted most of the module pretests, and, according to the 1975 data, a fair proportion of students were able to test out: The percent who passed the pretests ranged from 29 percent to 61 percent ($\bar{X}$=50 percent). It is apparent from Table 1 that the pretest - posttest feature was well received, especially when alternatives to the lecture-discussion format were developed.

By 1974 another strategy for reducing mandatory joint session attendance was evolving. Narratives were prepared for seven of the nine modules. These narratives contained the information necessary to meet the objectives for a given module, thereby providing an option to attending large group lecture sessions. This option was viewed favorably by students. In addition to the narrative format, video tapes were made of all the lectures given in 1974. Study guides were prepared to go along with these lectures, so that independent viewing of video tapes comprised a second instructional option for students who did not wish to attend lecture sessions.

A third format developed during the last two years of the JMC was the auto-instructional module. One such module, Resources for Special Educators, required students to conduct an ERIC search and to write for information regarding instructional materials, using the SelectEd Materials retrieval system. Explicit directions for this task were given on the module performance sheet. An approximation to an auto-instructional format was achieved for two more modules, Task Analysis and Behavioral Objectives. The content of the former was presented via a narrative, and no joint session was scheduled. However, students did meet with their individual instructors for one or more sessions devoted to task analysis. The Behavioral Objectives module involved only individual sessions. In 1974 an experimental auto-instructional Behavior Modification module was developed. Student dissatisfactions with this particular module resulted in a return to the original semi-independent instructional format in 1975.

An additional change that took place during the second year of the course was that practicum experiences with handicapped children were expanded and included as an assigned part of the course requirements. The rationale for this change was that students would better perceive the utility of the content if they were able to immediately apply the skills presented

in the course. Apparently, this strategy was successful, as none of the more frequent comments about weaknesses of the course mentioned the vague content after the first year.

Table 3 presents student responses to specific questions regarding logistical details of the JMC. Reflected in this data is a growing dis-

[Insert Table 3 about here]

satisfaction with the administrative rather than the philosophical aspects of the course. As the number of students in the course grew, it became increasingly evident that instructional aids (charts, overheads, etc.) were inadequate. Too, more and more students indicated that it was difficult to get time to talk with instructors who were responsible for teaching the joint sessions. Some students complained about delays in proctors returning tasks and others were not sure whether they were responsible to their small group instructor or the instructor in charge of the joint session. Dissatisfaction with these administrative matters probably influenced students' ratings of other course components.

While these course revisions and additions encountered favorable student response, the data in Table 3 reflect a developing feeling of general student dissatisfaction with the course. A similar dissatisfaction was growing among the instructors, who experienced major difficulties in finding the time needed to prepare materials and to procure necessary equipment and auxiliary personnel, as well as the time required to plan and coordinate the activities of four instructors and four courses. (This lack of coordination resulted in the loss of the 1972 student evaluations, which were given to the module leaders and course instructors directly, without analysis.)

These logistical problems required the appointment of one individual to coordinate the JMC's operation. Beginning in 1973, a JMC coordinator was

selected from the four instructors responsible for the methods courses. Although this step alleviated a number of problems, it created others. Following a traditional collegial pattern, the JMC coordinator was not given specific prerogatives to make independent decisions. This greatly limited the coordinator's ability to operate efficiently and with consistent effectiveness. It also hindered the work of graduate assistants serving as JMC proctors, as they were inconsistent in reporting to their individual instructor - supervisor or to the JMC coordinator. The confusion spread to students in the modules with respect to module assignments, pre- and posttesting, and scheduling. Individual course instructors found it necessary to make independent arrangements to insure that students met task criteria and deadlines. Monitoring such arrangements and coordinating entry into subsequent modules on a predetermined schedule proved to be a difficult and often impossible task for the coordinator.

The temporal and logistical problems described above were such that upon conclusion of the 1975 JMC, two instructors were unwilling to continue their participation in the course in its present form. All of the instructors found themselves unable to maintain an adequate level of control over, and monitoring of, student progress through the modules due to the amount of time required in managing daily administrative problems. Of particular concern to the instructors was their inability to consistently collect summative data on the overall effectiveness of the JMC. The data available indicated effectiveness, but the general faculty opinion was that the course was rapidly becoming less than cost-efficient. These problems were compounded by changes in module structure and content dictated by a sweeping change in special education teacher certification made by the state.

Because of these compounding factors, following the spring 1975 semester, the JMC was dropped and separate methods courses for each of the state's

certification areas in special education were reinstated. However, large portions of the JMC content were incorporated into the categorical methods courses. In addition, students in each of the certification programs had access to the module material, and as each module included written narrative and provisions for auto-instruction, students could expand their methods repertoires independently.

Conclusions

Although the JMC has gone to its reward, it should not be dismissed as an unprofitable venture. Through it, the special education faculty have realized a number of benefits. For example, the standard module format (Arends, et. al., 1973) has proven to be an excellent model for writing subsequent modules. It also has the advantage of assuring consistency across diverse content, which facilitates student and faculty use. In addition, faculty have gained extensive experience in writing competency-based instructional modules.

Perhaps the major benefit of the JMC has been the identification of generic competencies and "methods" content useful with most mildly and moderately handicapped populations. Recently, Kentucky has joined other states in establishing a broader special education certification base. (e.g., The category "Learning and Behavior Disorders" will replace the existing categories of "Educable Mentally Retarded", "Learning Disabled", "Orthopedically Handicapped", and "Emotionally Disturbed".) The instructional modules included in the JMC have been incorporated into the training program's new Learning and Behavior Disorders curriculum. Several modules (e.g., Behavior Modification, the Learning Environment, and Parent Counseling) have been expanded into independent courses, while others (e.g., Task Analysis and Behavior Objectives) will comprise a major portion of the content of additional courses.

While only process evaluation procedures have been described here, it is not our intention to minimize the importance of performance evaluation in CBTE. Edgar and Neel (1976) identified three phases of CBTE: Acquisition Phase, involving principally course content and related information; Proficiency Phase, where the trainee is provided with the opportunity to perform under supervision and is provided with a critique and if needed, retraining; and Maintenance Phase, which follows the completion of training. Determination of the effectiveness of CBTE is dependent upon the collection of performance data from all three phases.

Acquisition and proficiency data, in the form of pre- and posttest scores, practicum component evaluations, etc., were collected by individual course instructors. However, the variability among course requirements rendered the collective analysis of this data impractical. Performance data were used informally in guiding course revision, but the consistent format used for the process evaluation revealed more specific information about the course components needing immediate attention. (Recall that the decision to drop the JMC was based upon the process evaluation data, even though performance data indicated effectiveness.) It should come as no surprise to teacher trainers that student satisfaction is a major influence on the success of a course or training program. Therefore, evaluation of CBI should take into account both performance and process data.

The ultimate evaluation of the JMC's effectiveness must await long-term follow-up studies of program graduates, i.e., maintenance evaluation. If former students successfully employ the competencies trained in the JMC, the hypothesis that the JMC was effective can be entertained. However, as numerous uncontrolled variables (e.g., ability factors, training concomitant with or subsequent to the JMC, situational factors) interact with

the treatment variable, results of such follow-up studies are confounded, unless control groups are followed up also.

The experiences encountered in the evolution of the JMC perhaps contain useful implications for other training programs contemplating large-scale implementation of CBI. One area which should receive major consideration is the control of time, both the students' and the instructors'. As CBI is time- rather than achievement-based (Nagle and Richman, 1972), the possibility is strong that not all students will be at the same place in a given course at any given time. This situation requires careful consideration of alternate instructional strategies. One strategy would involve establishing procedures for continuous monitoring of student progress, and for providing content and/or competency attainment evaluation whenever a student is ready. Another strategy, used in the JMC, is to control time somewhat by incorporating response-cost contingencies in the student evaluation design, i.e., points are deducted for work turned in after a specified deadline. This strategy also helps eliminate the problem of students turning in careless or incomplete work, with the idea of using the instructor's feedback to improve the product. After two or three repetitions of this cycle, the instructor begins to feel that he has more time invested in the product than the student.

Another area in which the implications of a CBI approach should be considered is manpower. The JMC required the services of between four and seven graduate assistant proctors each semester, and even at that, the course was understaffed. CBI demands a large investment of personnel for such activities as module development, monitoring and assessment of student performance. It should be recognized that traditional faculty-student ratios are inadequate for implementing CBI where more than a handful of students are involved. Sources of instructional personnel used in the JMC included graduate assistants, other faculty, and field personnel. As special education

teacher training moves away from the lecture hall and into the field (a movement generated, in part, by CBI), greater use must be made of such resources anyway. However, as previously mentioned, the coordination of a large instructional staff is itself a difficult and time-consuming process. Training programs, therefore, should take measures to provide such coordination as well as the administrative support needed to make it effective. Although our experience tends to corroborate Hanninen, et. al.'s (1977) conclusion that having more than two instructors per course is logistically too complex, restricting the number of instructors is not the only solution to such logistical problems. Another alternative would involve reorganizing the training program around modules rather than courses. This tactic would more equitably use the expertise distributed among teaching faculty, but would call for a strategy to insure that students had access to a program advisor who was in close touch with their entire curriculum.

Footnotes

[1]Reprint requests should be addressed to C. M. Nelson, Department of Special Education, University of Kentucky, Lexington, Kentucky, 40506.

[2]Copies of module and course evaluation forms are available upon request.

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Table 1

Student Perceptions of
Strongest and Weakest Features of the
Joint Methods Course*

	STRONGEST FEATURES	WEAKEST FEATURES
1971	1. Team teaching 2. Increased familiarity with special education resources 3. Abundance of materials 4. Useful lectures and material 5. Important topics covered 6. Good use of class time	1. Too much material too fast 2. Lack of cohesion between modules 3. Too much extra time involved 4. Too many instructors 5. Too many joint sessions 6. Content too general
1973	1. Variety of instructors 2. Practicum component	1. Too much work 2. Proctors not clear on instructions 3. Some modules (particularly reading) not relevant
1974	1. Good handout materials 2. Opportunity to test out of a module 3. Student performance sheets for tasks 4. Modularized content (narrative) 5. Post-tests 6. Abundance of reading materials	1. Too much work 2. Not enough contact with individual instructors 3. Not enough time allotted for module completion 4. Quality of contact with individual instructors was poor
1975	1. Pretests: chance to test out of modules 2. Good handout materials 3. Individual module tasks 4. Module narrative 5. Abundance of reading material 6. Quality of individual sessions	1. Not enough time to complete work 2. Joint sessions . . .? 3. Quality of contact with individual instructors was poor 4. Team teaching 5. Joint sessions boring

* 1972 data was not available

Table 2

Module Changes, Number of Joint and Individual Sessions 1971-1975

MODULE	1971	1972	1973	1974	1975
Resources for special educators	x	x	x	x	x
Behavioral objectives	x	x	x	x	x
Task analysis	x	x	x	x	x
Behavior modification	x	x	x	x	x
Learning environment	x	x	x	x	x
Evaluation of instructional materials	x	x	x		
Assessment	x	x	x	x	x
Methods and Materials: perceptual motor skills	x				
M & M: Language development	x	x	x	x	
M & M: Reading	x	x	x	x	x
M & M: Mathematics	x	x	x	x	x
M & M: vocational & social skills	x	x			
Parent counseling		x			
NUMBER OF JOINT SESSIONS*	18	26	26	29	24

* This refers to the number of joint sessions offered. The number of joint sessions used by individual instructors varied among the separate methods courses.

Table 3

Percent of Students Responding "Yes" and "No" to Statements About JMC Components*

STATEMENT	1971		1973		1974		1975	
	Yes	No**	Yes	No	Yes	No	Yes	No
1. Performance sheets adequately specified terminal behavior	82	11	75	25	80	19	70	24
2. Lists of TBO's focused attention on critical skills	82	11	83	17	85	14	76	20
3. Lecture outlines helpful	80	17	81	17	90	6	83	14
4. Too many handouts	37	62	43	57	4	93	25	73
5. Audio-visual aids helpful	91	8	75	22	-	-	-	-
6. Greater use of AV aids needed	14	22	87	12	53	44	63	36
7. Resource materials were helpful	94	5	82	17	84	15	63	29
8. Sequence of modules appropriate	88	11	70	26	78	22	73	20
9. Class sessions too long	51	40	32	68	26	70	27	66
10. Having different large group instructors advantageous	88	11	78	19	81	18	56	42
11. Having different large group instructors destroyed continuity	14	82	18	77	21	75	37	58
12. Large group-small group modular format should be used again	88	0	82	14	71	27	32	59
13. Methods courses should be taught separately	14	80	18	75	32	66	61	34
14. Optional attendance at sessions desirable	-	-	-	-	-	-	76	19

* 1972 data was not available

** Not all students responded to every item.